

**Freshwater Quality Monitoring Protocol
San Francisco Area Network**

Standard Operating Procedure (SOP) # 1

REVISING THE PROTOCOL

Version 1.0 (January 2005)

Revision History Log:

| Prev. Version # | Revision Date | Author | Changes Made | Reason for Change | New Version # |
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This Standard Operating Procedure explains how to make changes to the Freshwater Quality Protocol Narrative and accompanying SOPs, and explains procedures for tracking these changes. SFAN or park staff editing the Protocol Narrative or any SOP need to follow this procedure to eliminate confusion in data collection and analysis methods. All SFAN aquatic resources staff should be familiar with this SOP in order to identify and use the most current methodologies. This SOP is adapted from the Bird Monitoring Protocol SOP #11 for Agate Fossil Beds National Monument, Nebraska and Tallgrass Prairie National Preserve, Kansas (Peitz et al., 2002). Their protocol can be accessed at <http://science.nature.nps.gov/im/monitor/protocols/birds.htm>

Procedures:

1. The Freshwater Quality Monitoring Protocol Narrative and accompanying SOPs has made every effort to incorporate the most sound methodologies for collecting and analyzing water quality data. However, all protocols require editing as new and different sample collection, analysis, and data management information becomes available. Required edits should be made as soon as they are deemed necessary and appropriate reviews conducted.
2. All edits will be reviewed for grammatical and technical accuracy and overall clarity. Minor changes or additions to existing methods will be reviewed “in-house” by the SFAN aquatic professionals team and other appropriate network staff. However, if a complete change in methods is anticipated, then an outside review is required. Regional (Pacific West Region) and National staff (Water Resources Division) of the National Park Service familiar with water quality monitoring and data analysis will be utilized as reviewers. Also, local and state experts in water quality monitoring and statistical methodologies outside of the Park Service will be utilized in the review process. A group of technical experts was utilized for the external peer review of the initial Freshwater Quality Protocol; these individuals would be called upon again to provide input related to any significant revisions in methodology.
3. Edits and protocol revisions will be documented in the Revision History Log that accompanies the Protocol Narrative and each SOP. Only changes in the Protocol Narrative or specific SOP that has been edited will be logged. “Version numbers increase incrementally by hundredths (e.g. version 1.01, version 1.02, ...etc) for minor changes. Major revisions should be designated with the next whole number (e.g., version 2.0, 3.0, 4.0 ...). Record the previous version number, date of revision, author of the revision, identify paragraphs and pages where changes are made, and the reason for making the changes along with the new version number” (Peitz et al, 2002).

4. Notify the SFAN Lead Data Manager of any changes to the Protocol Narrative or SOP so that the new version number can be incorporated in the Metadata of the NPSTORET database. The Data Manager will then edit the database per any changes to the Protocol Narrative and SOPs.
5. Post new versions on the internet and forward copies to all individuals with a previous version of the Protocol Narrative or SOP.
6. When any significant changes in the sampling protocol occur such as changes in sample collection techniques or equipment, a change in analytical laboratory, or changes in staff, there should be an “overlap” of methods and personnel (Oakley et al., 2003). This requires using both the old and new techniques on a given sample as well as having both the outgoing and new staff sample concurrently. The National Park Service Water Resources Division (NPS-WRD) recommends an overlap of at least seven sampling events (Irwin, 2005).

References:

Irwin, R. 2005. Personal Communication. National Park Service, Water Resources Division, Fort Collins, Colorado.

Peitz, D.G., S. G. Fancy, L. P. Thomas, and B. Witcher. 2002. Bird monitoring protocol for Agate Fossil Beds National Monument, Nebraska and Tallgrass Prairie National Preserve, Kansas. Prairie Cluster prototype monitoring program. Version 1.00, September 6, 2002.

Oakley, K.L, L.P. Thomas, and S.G. Fancy. 2003. *Monitoring Protocol Guidelines*. Wildlife Society Bulletin 31(4): 1000-1003.